AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently Amended) A process for purifying a monoolefin stream, comprising:

contacting a gaseous monoolefin stream comprising one or more monoolefins with a Diels-Alder dienophile to convert one or more conjugated olefins present in the monoolefin stream to a Diels-Alder adduct;

and removing the Diels-Alder adduct from the monoolefin stream, thereby purifying the monoolefin stream such that it comprises less than about 50 parts per million (ppm) conjugated olefins.

2. Canceled.

3. (Currently Amended) A process according to claim ~~2~~ 1 wherein said Diels-Alder dieneophile is selected from the group consisting of maleic anhydride, ~~derivatives of maleic anhydride,~~ benzoquinone, ~~derivatives of benzoquinone,~~ dialkyl fumarates, dialkyl maleates, dialkylacetylenedicarboxylates, and combinations thereof.

4. (Original) A process according to claim 3 wherein said Diels-Alder dieneophile is maleic anhydride.

5. (Previously Presented) A process according to claim 1 wherein said conjugated olefins comprise at least about 4 carbon atoms per molecule and no more than about 10 carbon atoms per molecule.

6. (Original) A process according to claim 5 wherein said conjugated olefins comprise at least about 4 carbon atoms per molecule and no more than about 8 carbon atoms per molecule.

7. (Original) A process according to claim 1 wherein said conjugated olefins are selected from the group consisting of 1,3-butadiene, 1,3-pentadiene, 1,3-hexadiene, 2,4-hexadiene, 1,3,5-hexatriene, 1,3-heptadiene, 2,4-heptadiene, 1,3,5-heptatriene, 1,3-octadiene, 2,4-octadiene, 3,5-octadiene, 1,3,5-octatriene, 2,4,6-octatriene, 1,3,5,7-octatetriene, 1,3-nonadiene, 2,4-nonadiene, 3,5-nonadiene, 1,3,5-nonatriene, 2,4,6-nonatriene, 1,3,5,7,nonatetraene, 1,3-decadiene, 2,4-decadiene, 3,5-decadiene, 4,6-decadiene, 1,3,5-decatriene, 2,4,6-decatriene, 3,5,7-decatriene, 1,3,5,7-decatetraene, 2,4,6,8-decatetraene, 1,3,5,7,9-decapentaene, and combinations thereof.

8. (Original) A process according to claim 7 wherein said conjugated olefins are selected from the group consisting of 1,3-butadiene, 1,3-pentadiene, 1,3-hexadiene, 1,3-heptadiene, 1,3-octadiene, 1,3-nonadiene and 1,3-decadiene.

9. (Original) A process according to claim 1 wherein said monoolefins comprise normal alpha olefins.

10. (Original) A process according to claim 1 wherein said monoolefins are selected from the group consisting of 1-butene, 1-pentane, 1-hexene, 1-heptene, 1-octene, 1-nonene, 1-decene, and combinations thereof.

11. (Original) A process according to claim 10 wherein said monoolefins are selected from the group consisting of 1-butene, 1-pentene, 1-hexene, and combinations thereof.

12. (Previously Presented) A process according to claim 1 wherein said purified monoolefin stream comprises less than about 25 parts per million conjugated olefins.

13. (Previously Presented) A process according to claim 1 wherein said purified monoolefin stream comprises less than about 10 parts per million conjugated olefins.

14. Canceled.

15. (Previously Presented) A process according to claim 1 wherein said is selected from the group consisting of distillation, adsorption, membrane separation, and combinations thereof.

16. (Previously Presented) A process according to claim 1 wherein said removing is conducted using reactive distillation.

17. (Original) A process according to claim 1 wherein said monoolefins are 1-butene and said conjugated olefins are 1,3-butadiene.

18. (Original) A process according to claim 17 wherein said dienophile is maleic anhydride.

19. (Previously Presented) The process according to claim 1 wherein said Diels-Alder dienophile is generally represented by the formula:

$R^1R^2C = CR^3R^4$ where

R^1 = H, $C(=O)OR^5$,$C(=O)R^6$,$C(=O)NR^7R^8$, CN, C_1 to C_{30} alkyl, and aromatic,

R^2 = H, $C(=O)OR^5$,$C(=O)R^6$,$C(=O)NR^7R^8$, CN, C_1 to C_{30} alkyl, and aromatic,

R^3 = H, $C(=O)OR^5$,$C(=O)R^6$,$C(=O)NR^7R^8$, CN, C_1 to C_{30} alkyl, and aromatic,

R^4 = H, $C(=O)OR^5$,$C(=O)R^6$,$C(=O)NR^7R^8$, CN, C_1 to C_{30} alkyl, and aromatic,

R^5 = C_1 to C_{10} alkyl, aromatic, and $(H)C=CH_2$,

R^6 = C_1 to C_{10} alkyl, aromatic, and $(H)C=CH_2$,

R^7 = C_1 to C_{10} alkyl, aromatic, and

R^8 = C_1 to C_{10} alkyl, and aromatic.

20. (Previously Presented) The process according to claim 1 wherein said Diels-Alder dienophile is generally represented by the formula:

$R^1C \equiv CR^2$ where

R^1 = H, $C(=O)OR^3$, $C(=O)R^4$, $C(=O)NR^5R^6$, CN, C_1 to C_{10} alkyl, and aromatic,

R^2 = H, $C(=O)OR^3$, $C(=O)R^4$, $C(=O)NR^5R^6$, CN, C_1 to C_{10} alkyl, and aromatic

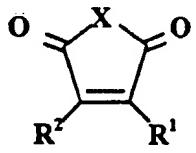
R^3 = C_1 to C_{10} alkyl, and aromatic,

R^4 = H, C_1 to C_{10} alkyl, and aromatic,

R^5 = C_1 to C_{10} alkyl, and aromatic, and

R^6 = C_1 to C_{10} alkyl, and aromatic.

21. (Previously Presented) The process according to claim 1 wherein said Diels-Alder dienophile is generally represented by the formula:

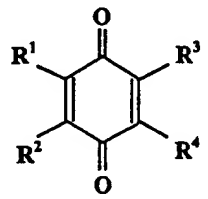


where X = O, N, and S,

R^1 = H, C_1 to C_{10} alkyl, and aromatic, and

R^2 = H, C_1 to C_{10} alkyl, and aromatic.

22. (Previously Presented) The process according to claim 1 wherein said Diels-Alder dienophile is generally represented by the formula:



where

R^1 = H, C_1 to C_{10} alkyl, and aromatic, and $(H)C=CH_2$,

R^2 = H, C_1 to C_{10} alkyl, aromatic, and $(H)C=CH_2$,

R^3 = H, C_1 to C_{10} alkyl, aromatic, and $(H)C=CH_2$, and

R^4 = H, C_1 to C_{10} alkyl, aromatic, and $(H)C=CH_2$.